

به نام خدا

معاینه نوزادان

دکتر مرجان جعفری

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دانشگاه علوم پزشکی اصفهان

PHYSICAL EXAM OF NEWBORNS

- **Initial examination**
- **Second examination**
- **Discharge examination**

INITIAL EXAMINATION

- Should be performed as soon as possible after delivery
- To detect abnormalities
- To establish a baseline for subsequent examination
- Monitor every 30 minute : temp, pulse, RR, color, type of respiration, tone, activity, LOC, for 2hr or more until stabilized
to be continue ...

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- For high risk deliveries should take place in delivery room
 - Focus on congenital anomalies and pathophysiologic problems that may interfere normal transition to extra uterine life

SECOND EXAMINATION

- Is more detailed exam
- Should be performed within 24hrs of birth
- With healthy infant , mother should be present during exam
- Even minor, insignificant anatomic variation may worry a family and should be explained carefully and skillful
- Certain abnormalities , particularly heart murmur may often appear or disappear in early neonatal period

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- Record PR, RR, Temp, Wt, Lt, HC, and any visible and palpable structural abnormalities
 - Record BP if neonate appear ill or has heart murmur

DISCHARGE EXAMINATION

- If an infant remain in hospital for more than 48hrs
- Should be performed within 24hrs of discharge
- You may have finding that were not in previous exam

BRANCHIAL CLEFT REMNANT

Figure 1.162. Abnormal development of the branchial clefts and arches may result in remnants, fistulae or cysts. Defects are usually unilateral and the external opening lies at the anterior edge of the sternocleidomastoid muscle, usually at the lower third. Secondary bacterial infection and cyst formation may occur. In this infant there is a branchial cleft remnant.



ORGANS

- Limb asymmetry
- Examination of the appearance of the limbs for malformations, birth trauma, anomalies, symmetry, deformities, edema
- Limb movement
- Number of fingers and their adhesion
- Examination for congenital dislocation of the pelvis (Ortolani and Barlow test)

CONGENITAL TORTICOLLIS

Figure 4.52. Congenital torticollis is usually not apparent at birth but within the first week a swelling is noted over the sternocleidomastoid muscle (stenomastoid tumor). This is thought to occur as a result of spasm, hemorrhage or fibrosis. It results in shortening of the sternocleidomastoid muscle and tilting of the head. It is important to recognize since it may cause astigmatism.



FX OF CLAVICLE

Figure 4.53. Fracture of the right clavicle in an infant at the age of 3 days. There was soft tissue swelling but not much callus formation. The baby may be asymptomatic and the first clinical sign may be a swelling over the clavicle from callus formation or there may be pseudoparesis of the upper limb on the affected side.



FX OF CLAVICLE

Figure 4.54. This infant did not have the fracture of the left clavicle diagnosed until the age of 10 days but the nurses had noted that the infant was irritable and restless especially when handled. Examination revealed the excessive callus due to a fracture of the left clavicle. In any infant with a fracture of the clavicle one should also check for injury to the brachial plexus, phrenic nerve, recurrent laryngeal nerve, and the sympathetic chain.



CYSTIC HYGROMA



Figure 1.165. The large cystic hygroma (lymphangioma) presented in this infant as a large soft fluctuating mass. These are located most commonly in the neck and consist of proliferation of lymph vessels. Although not malignant, they may spread over the neck with extension into the mouth.

AMNIOTIC BAND





Figure 4.63. Erb's palsy (upper brachial plexus injury) occurs as a result of traction on the brachial plexus (most often the upper nerve roots, C3, C4, and C5). This type of injury occurs most commonly in cases of shoulder dystocia. It presents with the infant lying with the affected upper extremity adducted and internally rotated, the elbow extended, and the hand partially closed with the palm directed outwards and posteriorly resulting in the typical "waiter's tip" position. The majority of these injuries resolve spontaneously in 3 to 4 weeks.

FX OF CLAVICLE

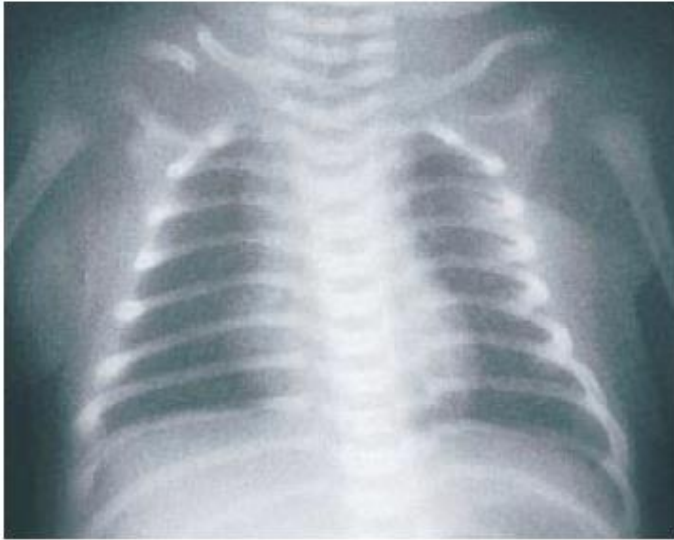


Figure 4.55. A radiograph of the chest showing a fracture of the right clavicle. The clavicle is the site of the most common fracture during delivery especially if shoulder dystocia is present. Healing is rapid because of the speed with which callus formation occurs and it is rare to have any permanent deformity.

FX OF HUMEROUS

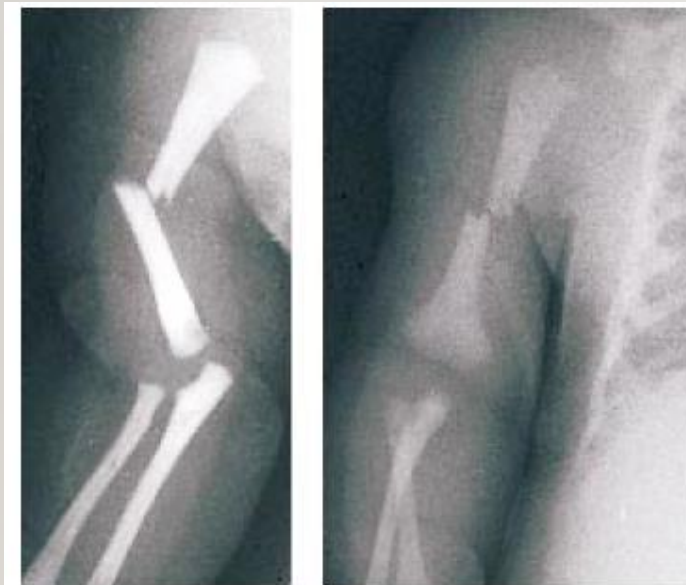


Figure 4.56. A radiograph of a fracture of the middle third of the right humerus following a difficult delivery. This commonly arises with shoulder dystocia and may be associated with lesions of the brachial plexus due to traction on the shoulder girdle. The upper arm is immobile, painful and may be swollen.

FX OF FEMOR



Figure 4.57. A radiograph of a fracture of the right femur occurring as a result of birth injury following breech extraction.

CHEST

- Breast hypertrophy (common, milk may be present, should not be expressed)
- Mastitis and breast abscess (asymmetric, erythema, indurations, tenderness)
- Super numerary nipple, inverted nipple, widely spaced with shield-shaped chest (turner sx)

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- Chest shape
 - Nipples (location, nipple spacing, nipple enlargement, redness, warmth, and swelling of the breast)
 - Rate and pattern of breathing
 - Breathing sounds (wheezes, rales, rhonchi)

SUPERNUMERARY NIPPLES

Figure 1.83. Supernumerary nipples are especially common in members of darkly pigmented racial groups. They occur anywhere along the milk line and the supernumerary breast tissue may present as an oval pigmented spot less than half the size of the normal nipple, or may present as another fully developed nipple.



PHYSIOLOGIC BREAST ENLARGEMENT

Figure 1.78. Mastitis neonatorum due to physiologic breast engorgement is the result of transplacental transfer of maternal estrogen to the fetus. Enlargement is generally symmetrical, as noted in this infant. Witch's milk (which is chemically identical to colostrum) may be expressed from the breasts, but it is not advisable to relieve the swelling by expressing the milk since infection may follow.



PHYSIOLOGIC BREAST ENLARGEMENT



Figure 1.79. Another example of mastitis neonatorum which is asymmetrical in that it is more prominent on the right than on the left. Mastitis neonatorum is noted more frequently in postmature infants. It subsides spontaneously over the course of several weeks.

SUPERNUMERARY NIPPLE

Figure 1.84. In this infant there is a unilateral supernumerary breast on the left side. Supernumerary breasts are rare. These are potentially functional and, like extra nipples, these structures occur along the embryonic milk line unilaterally or bilaterally, usually below the normal site of breast placement. The nipple and areola are quite well developed, distinguishing this anomaly from simple supernumerary nipples.



LUNG

- Variation in rate and rhythm (activity, state of wakefulness, crying)
- So count in a full minute in resting state
- 30-40 in full term, more in premature (>60 abnl)
- Periodic respiration in premature
- Gasping
- Grunting (benign if resolve in 30-60 min, is a sign of serious cardiac, pulmonary, sepsis)

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- Nasal flaring and retraction (common sign of pulmonary dx)
 - Breath sound is bronchoviscular
 - Do CXR if rals, decreased BS, dullness in percussion

HEART

- Transitory murmur is common
- Pulse 90-180/min
- Palpate pulse in upper and lower ext.
- Check BP in ill infant or heart murmur

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- Auscultation of the heart (rate, rhythm, abnormal sounds)
Pulses of the limbs
 - Cyanosis
 - Excessive sweating and fatigue during breastfeeding
 - Blood pressure (risk factors for blood pressure should be assessed)

ABDOMEN

- Liver is palpable 2 cm BCM
- Tip of spleen is palpable
- Kidney on deep palpation
- Gas in rectum normally should be present on xray by 24 hrs
- Diastasis recti
- Umbilical hernia
- Unusual mass (immediate sono)

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- Shape, abdominal tenderness, omphalocele, gastroschisis
 - Umbilical cord (discharge, bleeding)
 - Umbilical hernia
 - Abdominal mass

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- Abdominal distention
 - Scaphoid abdomen (DH)
 - Abominal wall defect (omphalocele , gastroschiis)
 - Omphalitis

DIASTASIS RECTUS



Figure 2.13. Diastasis rec in a premature infant. Th condition is more frequent observed in low-birthweigh infants and improves wit maturation.

SCHAPHOID ABDOMEN



Figure 2.14. The abdomen is usually scaphoid at birth but as loops of bowel are filled with gas from swallowed air and the liver is displaced downward by postnatal expansion of the lungs, the abdomen soon becomes moderately protuberant. In this infant with a scaphoid abdomen, a diaphragmatic hernia was present. Differential diagnosis of a scaphoid abdomen includes severe CNS depression, congenital diaphragmatic hernia, and esophageal atresia with a blind pouch.

ABDOMINAL DISTENTION



Figure 2.44. Abdominal distention with prominent loops of the bowel in a premature infant. This so-called “pseudoparalytic ileus” of prematurity occurs as a result of poor muscle development in both the abdominal wall and intestinal wall. The infants develop temporary distention with prominent loops of bowel, especially at feeding times. The condition improves with increasing maturity. Persistent distention in a premature infant could be associated with delay in passing meconium.

OMPHALOCELE

Figure 2.137. This infant has a moderate-sized omphalocele. The sac may contain a single loop of bowel or most of the intestine and liver. An omphalocele is caused by failure of the complete return of intestines to the abdominal cavity in early fetal life (10 weeks). Extra-abdominal contents are positioned midline. The umbilical cord is incorporated and a sac is present. Intestinal malrotation is a frequent associated finding. Omphaloceles may occur as isolated findings or can be associated with other congenital and chromosomal abnormalities. It is frequently seen in trisomy 13 and in Beckwith-Wiedemann syndrome.



GASTROSCHISIS

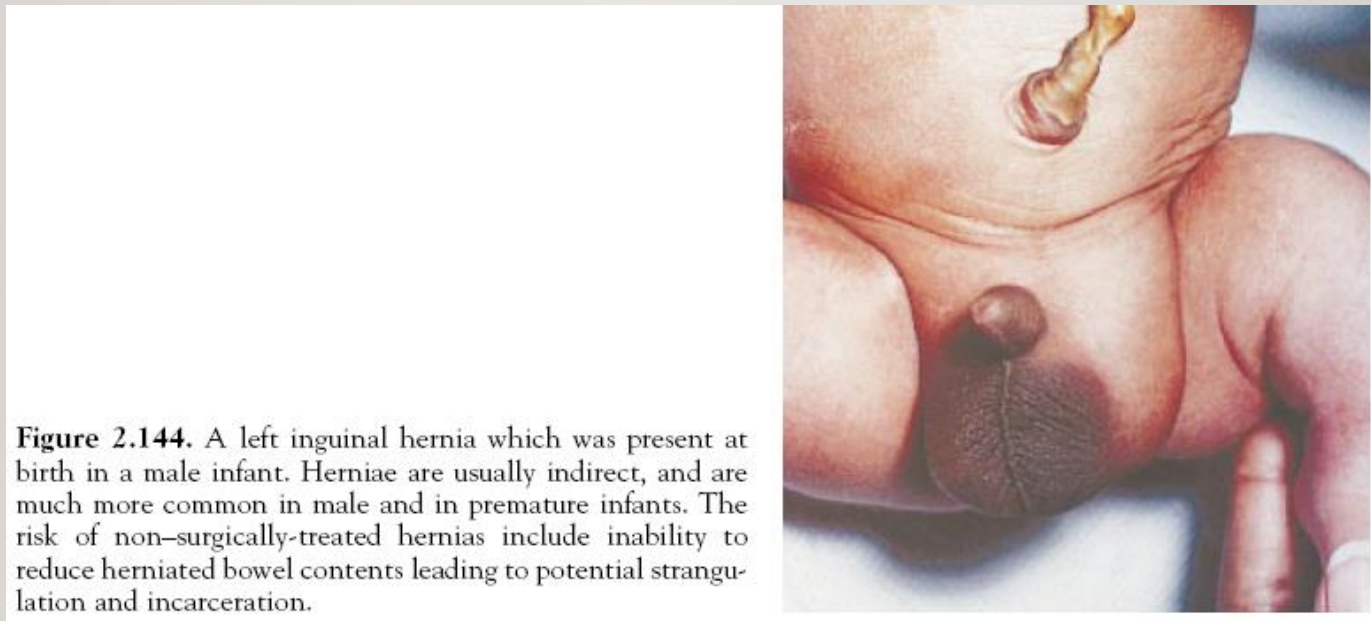


GENITALIA

- Prominence of female genitalia
- Non purulent discharge
- Imperforate hymen (hydrometrocolpus)
- Scrotom (relatively large, truma at breach,transitory hydrocele)
- Testis should be in canal or scrotom
- Hypospedias and epispediasis
- Most void in 12hrs , 95%within24 hrs

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- In girls, abnormal mass on palpation of the labia, abnormal enlargement of the clitoris
 - In boys, unilateral or bilateral undescended testicles, shape and size of the penis, location of the urethra (hypospadiasis, epispadiasis, preputial form)
 - Genital ambiguity
 - Hernia
 - Location and opening of the anus should be observed

INGUINAL HERNIA



NORMAL VAGINAL DISCHARGE



Figure 4.43. Normal mucoid vaginal discharge in a normal female infant. This results from the “withdrawal effect” from the in utero environment.

NORMAL VAGINAL BLEEDING



Figure 4.44. “Withdrawal” bleeding in a normal female neonate. Vaginal bleeding is not uncommon in the first week of life. It is caused by the withdrawal of the high maternal estrogen level to which the baby has been exposed in utero. Vaginal bleeding is self-limited in that transplacental hormone withdrawal effect starts on the third to fourth day of life and continues for 2 to 3 days.

HYMENAL TAG

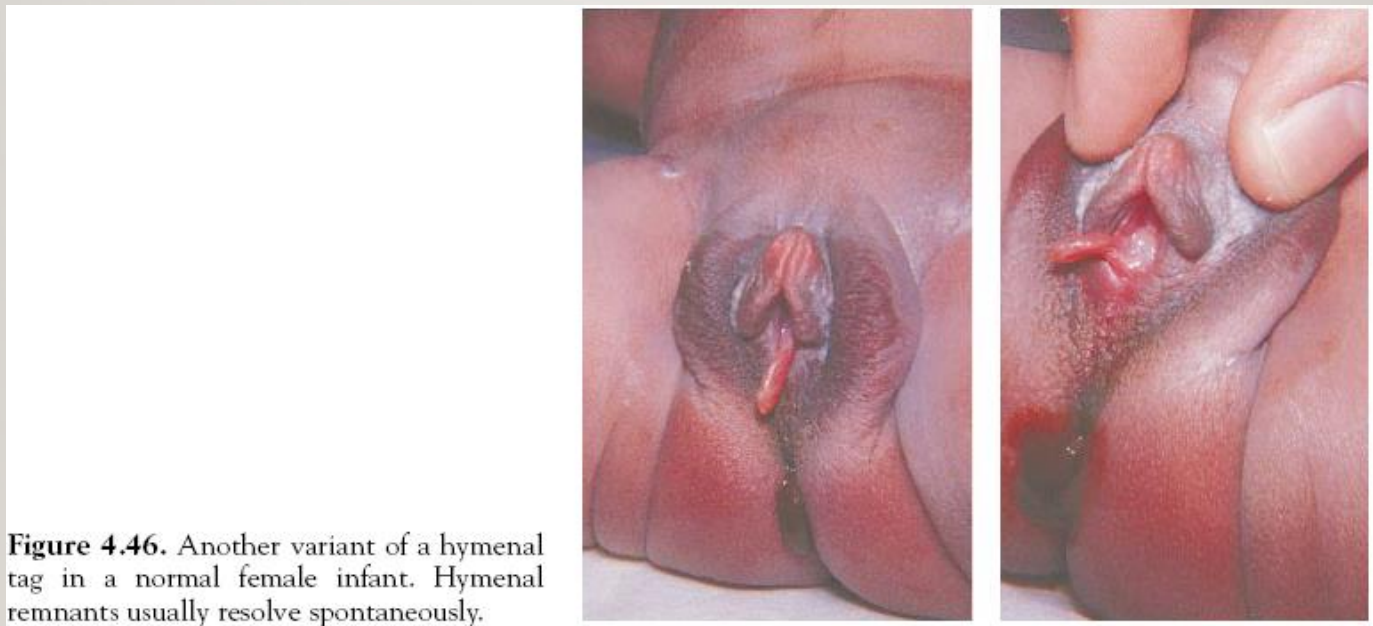


Figure 4.46. Another variant of a hymenal tag in a normal female infant. Hymenal remnants usually resolve spontaneously.

BILATERAL UNDESCENDED TESTES



Figure 4.69. Bilateral undescended testes with an empty scrotum in a term male infant.

HYDROCELE

Figure 4.70. Bilateral hydroceles in a term male infant. Hydroceles arise from an abnormal collection of fluid in the tunica vaginalis which has failed to invaginate following descent of the testis. This is recognized clinically as a scrotal mass that transilluminates. At birth, up to 15 to 20% of male infants may have some degree of hydrocele. Complete spontaneous resolution is to be expected over a period of a few weeks to months.



TRAUMA DUE TO BREACH DELIVERY



Figure 4.30. Bruising of male genitalia due to a breech presentation. Note the marked swelling of the scrotum and penis. In rare cases testicular trauma may occur.

TRAUMA DUE T BREACH DELIVERY

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Figure 4.31. Breech presentation in a female infant with marked bruising and swelling of the genitalia. Note the swollen labia majora and bruised labia minora.

ANUS

- 99% Of term and 95% preterm pass meconium within 48 hrs
- Imperforate anus (inspection and exam by finger or rectal tube)

IMPERFORATE ANUS

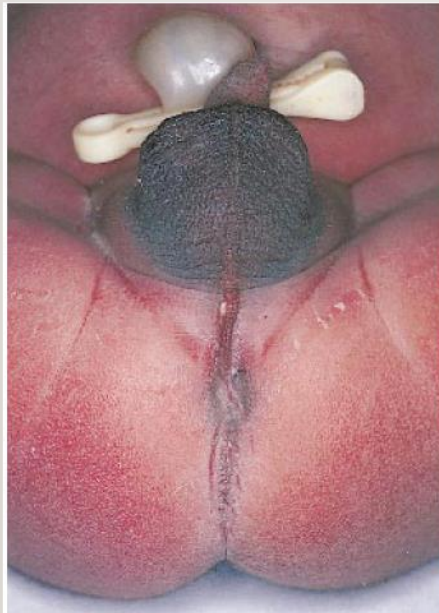


Figure 2.61. Median raphe with small inclusion cysts and an imperforate anus. Without careful examination, the diagnosis of imperforate anus may easily be missed.

2.62



Figure 2.62. This is another example of an infant with imperforate anus. Note the anal dimple and in addition there is a hypospadias involving the glans. Anal atresia is often associated with other anomalies, primarily genitourinary tract or vertebral anomalies. It is also observed in the VACTERL syndrome.

IMPERFORATE ANUS WITH FISTULE



Figure 2.67. Imperforate anus with a rectovaginal fistula. The large fistulous tract allows for free passage of meconium hence this infant had no abdominal distention.

ENCEPHALOCELE AND MYELOMENINGOCELE



Figure 3.56. Infant with both a posterior encephalocele and a lumbar myelomeningocele. The lumbar area is the most common site for myelomeningoceles.

BACK

- Spine, Sacrum
- Kyphoscoliosis
- Lump with abnormal hair at the spine site
- Hemangioma at the spine site

TAIL



Figure 1.73. A baby with tail. Vestigial tails are rarely seen in the neonate. They may consist of soft tissue only, as in this infant, or may contain osseous structures.

MONGOLIAN SPOT



HIP JOINTS

- Hip joints (for congenital dysplasia)
- Asymmetry of the gluteal folds and unequal legs
- Ortolani and barlow manor

NEUROLOGICAL EXAMINATION

- Level of consciousness, muscle strength
- Neonatal reflexes
- Tone (active, passive)

خسته نباشید

